UNITED STATES PATENT AND TRADEMARK OFFICE

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10/826,947	04/16/2004	Stephen K. Pinto	17146-0008001	1609

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EXAMINER
GAMI, TEJAL

ART UNIT	PAPER NUMBER
2121	

NOTIFICATION DATE	DELIVERY MODE
02/19/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/826,947	PINTO ET AL.
	Examiner	Art Unit	
	TEJAL J. GAMI	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 January 2010*.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
   closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.
   4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-28* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a)☐ All   b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
         application from the International Bureau (PCT Rule 17.2(a)).
   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)
1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date *1/11/2010*.
4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____ .

DETAILED ACTION

1.   This office action is responsive to a REQUEST FOR CONTINUED

EXAMINATION entered January 11, 2010 for the patent application 10/826947.

Status of Claims

2.   Claims 1-28 were rejected in the last Office Action dated July 10, 2009.

As a response to the July 10, 2009 office action, Applicant has Amended claims

1 and 6.

Claims 1-28 are now presented for examination in this office action.

Claim Objections

3.   Claim 6 is objected to because of the following informalities:

Claim 6, Line 7-8: Appears to be missing step (b).

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5.   Claims 1-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Lazarus

et al. (U.S. Patent Number: 6,430,539)

As to independent claim 1, Lazarus discloses a machine-base method

comprising:

in connection with a project (e.g., predictive modeling of consumer financial

behavior) (see Abstract), selecting a first subset of historical data about a system being

modeled (e.g., certain merchants in a segment; and Figure 9 for segment 1, segment 2,

...segment M) (see Col. 37, Lines 54-65) for use in generating a tentative predictive

model for the system (e.g. predictive model generation system) (see Figure 9; and Col.

16, Lines 4-5; and Col. 31, Lines 12-29), the first subset of historical data comprising

less than all of the historical data (e.g., historical spending in the cluster) (see Col. 4,

Lines 11-16);

selecting a process for developing a predictive model for the system from among

multiple possible model development processes (e.g., highest correlation with the

segment vector, highest average transaction amount, or other selective criteria) (see

Table 13; and Col. 37, Lines 54-65);

applying the selected model development process to the first subset of historical

data to generate the tentative predictive model (e.g., segment models) (see Table 13

and Col. 38, Lines 23-38);

selecting a second subset of the historical data (e.g., certain merchants in a

segment; and Figure 9 for segment 1, segment 2, ...segment M) (see Col. 37, Lines 54-

65), the second subset (e.g., each segment) being less than all of the historical data

and being at least a portion of a complementary dataset of the first subset (e.g.,

overlapped segments) or being randomly selected from the historical data and

independent of the first subset (see Col. 38, Lines 24-53);

applying the tentative predictive model (e.g., segment models) to the selected

second subset (e.g., overlapped segments) (see Col. 38, Lines 24-53), determining

whether results of applying the tentative predictive model to the selected second subset

validate that the selected model development process will produce a final predictive

model that is accurate for data that is not part of the historical data (e.g., generate lift

charts for the targeting population in the segment, and for overlapped combined

segments) (see Col. 38, Lines 24-53), if the selected model development process is so

validated (e.g., lift chart useful for validating the performance of the predictive models)

(see Col. 34, Lines 20-23), then applying the validated model development process to a

full set of historical data that includes the first and second subsets generate a final

predictive model (e.g. segment models may be merged to produce a single lift chart)

(see Col. 38, Lines 37-39), and using the final predictive model (e.g., target promotional

offers) (see Figure 3).

As to independent claim 6, Lazarus discloses a machine-based method

comprising:

in connection with a project (e.g., predictive modeling of consumer financial

behavior) (see Abstract), selecting a model development process from multiple model

development processes to apply on a first subset of less than all of a set of historical

data to generate a first tentative predictive model (e.g., highest correlation with the

segment vector, highest average transaction amount, or other selective criteria) (see

Table 13; and Col. 37, Lines 54-65), applying the selected model development process

including

a) automatically transforming variables of the subset of the historical data

(e.g., variables) (see Col. 11, Lines 13-23),

automatically generating the first tentative predictive model (e.g., segment

models) (see Table 13 and Col. 38, Lines 23-38), and

c) automatically generating performance measures of the first tentative

predictive model (e.g., confirm model performance) (see Col. 4, Lines 25-26),

determining a validity of the selected development process based on the

performance measures of the first predictive model (e.g., validation and analysis of the

segment predictive models done to confirm model performance) (see Col. 11, Lines 21-

23);

applying the validated model development process (e.g., lift chart useful for

validating the performance of the predictive models) (see Col. 34, Lines 20-23; and Col.

38, Lines 23-38) to a full set of historical data (e.g., based on historical data) (see Col.

4, Lines 11-16) that includes the subset (e.g., certain merchants in a segment; and

Figure 9 for segment 1, segment 2, ...segment M) (see Col. 37, Lines 54-65) to

generate a second (e.g., overlapped segments) (see Col. 38, Lines 24-53), final model

(e.g. segment models may be merged to produce a single lift chart) (see Col. 38, Lines

37-39), and using the final predictive model (e.g., target promotional offers) (see Figure

3).

As to dependent claim 2, Lazarus teaches teaches the method of claim 1 also

including displaying on a user interface project goals to enable the user to assess

performance of the project (see Figures 7a and 7b), wherein the project goals comprise

at least one of:

cumulative lift over an interval of interest, degree of monotonicity, or concordance

scores (e.g., cumulative lift time interval) (see Col. 11, Lines 16-25; and Col. 34, Lines

20-64).

As to dependent claim 3, Lazarus teaches the method of claim 2 also including

identifying that the tentative predictive model does not produce at least a predefined

degree of lift for at least one of the subsets (e.g., lift rank) (see Col. 35, Lines 14-23).

As to dependent claim 4, Lazarus teaches the method of claim 3 also including

enabling a user to choose interactively at least one model development criterion (e.g.,

selective criteria) change or transformation or interaction of variables to improve a fit of

the predictive model (e.g., highest correlation) (see Col. 5, Lines 46-49; and Col. 37,

Lines 49-65).

As to dependent claim 5, Lazarus teaches the method of claim 4 also including

graphically displaying and comparing measures of performance for the validation

dataset and the training dataset (e.g., validation to confirm model performance) (see

Col. 4, Lines 20-26).

As to dependent claim 7, Lazarus teaches the method of claim 6 also including

generating measures of the performance of the predictive model for the at least two

datasets (e.g., clusters/segments), the performance measures being generated

separately percentile by percentile (e.g., percentile ranking) (see Col. 35, Lines 49-55).

As to dependent claim 8, Lazarus teaches the method of claim 6 also including

graphically displaying and comparing measures of the performance for at least two

datasets (e.g., ranking) (see Col. 34, Lines 21-23; and Col. 35, Lines 49-55).

As to dependent claim 9, Lazarus teaches the method of claim 6 also including

persistently storing the validated model development process and a validated model for

computing propensities for at least one target outcome variable, the propensities

serving as indices of a score for non-historical data (see Col. 35, Lines 49-55).

As to dependent claim 10, Lazarus teaches the method of claim 6 also

including providing a user interface (e.g., lift chart; models) (see Col. 34, Lines 20-64;

and Col. 35, Lines 32-38) for assessing project goals against performance (e.g., goal)

(see Col. 1, Lines 35-37).

As to dependent claim 11, Lazarus teaches the method of claim 6 also

including providing a user interface for selecting at least one subset of the historical

data in addition to a training subset (see Col. 4, Lines 20-25).

As to dependent claim 12, Lazarus teaches the method of claim 6 providing a

user interface for displaying the performance of the first predictive model for at least two

subsets of the historical data for an interval of interest (e.g., time interval) (see Col. 4,

Lines 16-26).

As to dependent claim 13, Lazarus teaches the method of claim 6 enabling a

user to choose interactively (e.g., selective criteria) at least one transformation or

interaction of variables to improve the model development process (e.g., highest

correlation) (see Col. 5, Lines 46-49; and Col. 37, Lines 49-65).

As to dependent claim 14, Lazarus teaches the method of claim 6 also

including cross-validating the final model using random portions of the historical data

(e.g., cross-segment) (see Col. 11, Lines 8-23).

As to dependent claim 15, Lazarus teaches the method of claim 6 providing a

user interface that enables the user to select at least one validation dataset and invoke

a process for validating the model development process (e.g., selective criteria) (see

Col. 37, Lines 49-65).

As to dependent claim 16, Lazarus teaches the method of claim 6 providing a

user interface that enables the user to point and click to cause display of information

about the validation of the model development process (e.g., computer) (see Col. 6,

Lines 41-67).

As to dependent claim 17, Lazarus teaches the method of claim 16 in which the

information about the validation of the model development process includes at least one

of:

a statistical report card (e.g. statistical information) (see Col. 3, Lines 50-54) with

a link to the statistical report chart (e.g., statistical model) (see Col. 4, Lines 25-28), a

cumulative lift chart with a link to the cumulative lift chart, and a non-cumulative lift chart

with a link to the non-cumulative lift chart (e.g., cumulative lift chart) (see Col. 34, Lines

20-50).

As to dependent claim 18, Lazarus teaches the method of claim 17 in which invocation of the link to the statistical report card (e.g. statistical information) (see Col. 3, Lines 50-54) causes display of the statistics of the validation of the model development process (e.g., validation of statistical model) (see Col. 4, Lines 25-28).

As to dependent claim 19, Lazarus teaches the method of claim 17 in which invocation of the link to the cumulative lift chart causes display of a cumulative lift chart (e.g., cumulative lift chart) (see Col. 34, Lines 20-50).

As to dependent claim 20, Lazarus teaches the method of claim 17 in which invocation of the link to the cumulative lift chart causes display of a non-cumulative lift chart (e.g., segment lift chart) (see Col. 34, Lines 20-50).

As to dependent claim 21, Lazarus teaches the method of claim 17 in which a user is enabled to choose interactively at least one performance criterion (e.g., selective criteria) change or transformation or interaction of variables to improve the model development process (e.g., highest correlation) (see Col. 5, Lines 46-49; and Col. 37, Lines 49-65).

As to dependent claim 22, Lazarus teaches the method of claim 6 also including providing a user interface that enables the user to select at least one machine automated model development process applied to the entire set of the historical data for the validated model development process (e.g., selective criteria) (see Col. 37, Lines 49-65).

As to dependent claim 23, Lazarus teaches the method of claim 6 also including providing a user interface that enables the user to point and click to cause

display of information about the performance of the validated model development

process applied to the entire set of historical data (e.g., computer) (see Col. 6, Lines 41-

67).

As to dependent claim 24, Lazarus teaches the method of claim 23 in which the

information about the performance of the first model for two independent datasets

includes at least one of the following:

a statistical report card (e.g. statistical information) (see Col. 3, Lines 50-54) with

a link to the statistical report chart (e.g., statistical model) (see Col. 4, Lines 25-28), a

cumulative lift chart with a link to the cumulative lift chart, a non-cumulative lift chart with

a link to the non-cumulative lift chart (e.g., cumulative lift chart) (see Col. 34, Lines 20-

50).

As to dependent claim 25, Lazarus teaches the method of claim 24 in which the

invocation of the link to the statistical report card (e.g. statistical information) (see Col. 3,

Lines 50-54) causes display of the statistics of the validation of the model development

process (e.g., validation of statistical model) (see Col. 4, Lines 25-28).

As to dependent claim 26, Lazarus teaches the method of claim 24 in which the

invocation of the link to the cumulative lift chart causes display of a cumulative lift chart

(e.g., cumulative lift chart) (see Col. 34, Lines 20-50).

As to dependent claim 27, Lazarus teaches the method of claim 24 in which the

invocation of the link to the cumulative lift chart causes display of a non-cumulative lift

chart (e.g., segment lift chart) (see Col. 34, Lines 20-50).

     As to dependent claim 28, Lazarus teaches the method of claim 6 also

including storing the final model and validation results of the model development

process persistently (e.g., stored in databases) (see Col. 6, Lines 41-67).

Response to Arguments

6.   Applicant's amendment and arguments filed January 11, 2010 have been fully

considered. The amendment does not overcome the original art rejection and the

arguments are not persuasive. The following are the Examiner's observations in regard

thereto.

Applicant Argues:

There is nothing in the figure 5 or text passages of Lazarus cited by the examiner that
suggested that merchant vectors are less than all of the historical data, as now recited
in the applicant's claim 1.

Examiner Responds:

Examiner is not persuaded. See office action above for prior art anticipation of this

newly presented claim limitation. See particularly the prior art Abstract where "merchant

vectors representing specific merchants are clustered to form merchant segments;" and

see Figure 9 for segments 1 to M. Because there are numerous clusters and segments,

a single cluster or segment is less than all.

Applicant Argues:

The cited passages did not describe and would not have made obvious a selection of a
model development process, which would be validated based on a subset of the
historical data, but rather simply a selection of a target audience to which to apply a

model. Lazarus described his lift chart as being used to validate just the accuracy of the models, not the accuracy and generalizability of the model development process.

Examiner Responds:

Examiner is not persuaded. According to applicant's independent claim 6 where

"validating the selected development process" is "based on the performance measures

of the predictive model," see prior art Col. 34, Lines 20-23 for a lift chart useful for

validating the performance of the predictive models. Also see prior art Table 13 and Col.

37, Lines 54-65 for examples of model development processes, such as, "highest

correlation with the segment vector, highest average transaction amount, or other

selective criteria." Under such considerations, the prior art anticipates validating the

selected development process based on the performance measures of the predictive

model.

Conclusion

7.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Tejal J. Gami whose telephone number is (571) 270-

1035. The examiner can normally be reached on Monday-Friday.

      If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Albert DeCady can be reached on (571) 272-3819. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

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Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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